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REPORT ON BURMESE ELEPHANTS.

BY

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SEPTEMBER 1894.

Note on Elephants in Burma, with a description of their Equipment, by VETERINARY CAPTAIN G. H. EVANS, Army Veterinary Department; Superintendent, Civil Veterinary Department, Burma (September 1894).

Names.—The elephant met with in Burma is the Asiatic (*Elephas Indicus*)—

Burmese	...	...	Hsen	...	Wild Elephants	...	Tor-Hsen.
Shan	...	...	Sant-Hain	...	Ditto	...	Sant-Htaint.
Karen	...	...	Ka-Sau.				

From time immemorial the Burmese and Siamese have regarded the White Elephant as a sacred beast Sir John Bowring states that the reason why this animal is so specially reverenced is, "Because it is believed that Buddha, the divine emanation from the Deity, must necessarily in his multitudinous metamorphoses or transmissions through all existences, and through millions of æons, delight to abide for some time in that grand incarnation of purity which is represented by the White Elephant. While the Phongyis (priests) teach that there is no spot in the heavens above or the earth below, or the waters under the earth, which is not visited in the peregrinations of the divinity, whose every stage or step is towards purification, they hold that his tarrying may be longer in the White Elephant than in any other abode, and that in the possession of the sacred creature they may possess the presence of Budha himself." The same author states that these animals have been the cause of many a war, and their possession more an object of envy than the conquest of territory.

The kings of Burma were very proud of the titles of "Lord of the Celestial Elephant," and "Lord of many White Elephants." The kings of Siam also glory in these pompous titles; in that country everything associated with majesty and rank bears the image of the White Elephant. These animals are surrounded with all the adjuncts of royalty, *viz.*,—gold umbrellas, etc.,—and when they die, are accorded a royal funeral.

The Burmese being Buddhists, are naturally kind to all dumb creatures, so that the elephant, in common with other domestic animals, is well cared for.

Wild Elephants.—These animals are very numerous, and roam about in large herds in the dense jungles at the foot of the hills, very few are caught and tamed by Government for the use of the State. The kings of Burma used to carry on "keddah" operations on a small scale, in the Mandalay and other districts, and were, I believe, fairly successful. I feel certain that if operations were properly conducted, large captures could be made;—the animals are plentiful enough.

As a general rule the herds vary in number from five to sixty animals, but the latter number may often be exceeded. The animals met with are compact, massive, and of fair height; with regard to the latter point, there may be slight variations between Indian, Burmese, and Siamese animals. The usual pace of elephants is a walk; it is only when annoyed or scared that they take on a faster rate of locomotion, which is a shuffling amble, but it is only known to those who have had an enraged monster after them the wonderful amount of speed these creatures can attain in an incredibly short time. The elephant is no doubt "King of the Forest;" they are rarely interfered with by other wild beasts; now and again, however, a hungry tiger may attack a solitary animal. A year or two ago, in the Tharrawaddy district, a tiger attacked, on different occasions, one or more animals, the property of a Burman contractor, inflicting such severe injuries that, I believe, one or more succumbed. It is calves that usually fall victims to tigers, and the manner in which they catch them is as follows:—A tiger having observed calves in a herd, he lies in ambush close by, awaiting an opportunity (which usually occurs while the herd is busily engaged feeding), and then springs out, seizes a calf by the leg, just above the pad, and bolts. The herd, after his attack, is on the

qui vive, so he keeps out of the way; but while they are moving off to fresh ground the tiger follows; the little one, being lame, probably lags behind, thus giving stripes another chance. If he does not get one, he waits till the herd settles down again to feed, and then, when the opportunity offers, he makes another dash at his victim, and invariably bites a second limb. The calf is now *hors de combat*, and the tiger knows that he has only to wait, as the herd, if large, cannot stay long in one place; for twenty or thirty animals will soon clear all the "tit bits" on the ground where they are feeding; or they may want water, so the young one has to be left behind. I believe, however, that they will not leave a young one until they are forced. As soon as the herd is clear, the tiger finds a young beast an easy prey, and no doubt a very excellent meal. In January last, a tiger attacked a calf in a cane-brake. The little fellow was crying pitifully; his legs were so badly bitten that he was really unable to walk a few yards, so had to be shot. Two cows were on guard and charged so furiously that they also had to be shot. All this occurred within fifty yards of a main track through the jungle. The people sometimes catch a "rogue" or other destructive beast by means of pitfalls. These are made in the following manner: The point selected for digging a pit is on one of their well-known tracks to certain water or cultivation, and usually at a spot where the grass or jungle is very thick. The pit having been dug, all traces of fresh earth are removed; the mouth is then carefully concealed with bamboos, elephant-grass, etc. After this a good amount of fresh droppings is procured, and these are thrown over the grass. This trick rather puts an animal off his guard, and so he falls into the trap. The men then turn out and destroy the animal with spears or a gun. Karens now and again capture one or two with the aid of tame elephants.

Considering their great size, elephants are wonderfully active,—climb up and go down steep places in a surprising manner; and they are also excellent swimmers. When in deep water, the whole body is immersed; only the end of the trunk is kept above water.

Value of Elephants.—In a country like Burma the great value of these creatures can readily be appreciated, large areas being covered with dense impenetrable jungles, immense marshy tracts, steep hills and deep ravines; added to which the whole country is intersected by rivers, large and small. In the absence of waterway in a place such as described, elephants are more than useful, they are indispensable; they can with ease penetrate the dense and pathless jungle, their great size and weight causes them to leave a very fair track as they move along; they can cross wide rivers, ford fast-running streams, carry men and baggage across swamps and heavy marshes pervious to no other kind of transport animal. The value of an animal for transport purposes possessed of such strength and docility cannot be over-estimated.

In Burma, elephants are largely employed in the timber trade; in fact, the great trade carried on in this line may be said to depend almost entirely on elephant-labour. The timbers being scattered over wide areas of country without roads or slips, the logs have to be dragged by elephants through the jungle, over ridges, down ravines, and finally pushed into the floating streams, when, owing to the immense strength of these animals, they can stand in the strong current and sort the timber for rafting, clear it when the logs get jammed, and push them back into the water when stranded. In the large timber yards in Rangoon, Maulmain, etc., they have to haul the logs out of the river, bring them up to the saw-bench, and after they are shaped, the elephants remove and stack them as neatly as if done by human hands; and in all these operations they are cheap and most efficient. It is quite one of the sights in Burma to see the timber yard animals at work.

Powers of Endurance.—Though such enormous creatures, they are constitutionally delicate. I fear that, through lack of appreciation of this fact, these animals have not received the amount of attention they justly deserve; and owing to the popular opinion that they are very strong, they have been too highly tasked. A great deal of the ill-health and mortality amongst elephants may well be ascribed to this cause. It cannot be too forcibly impressed on those persons entrusted with the care of public animals, that untiring and vigilant superintendence over the attendants is the means, above all others, for the

proper preservation of the efficiency of the animals committed to their charge. They must remember that the class of men usually employed with transport, if left to themselves, are, from general indolence, carelessness, or from a desire to avoid the fatigue and hardships of a campaign, quite liable to render their animals unserviceable. Ample supervision enables the carrying out of systematic checks against carelessness, and, still more, of checks to malpractices. A little neglect will often deprive a force of the valuable services of many animals.

Purchasing.—To begin with, it will perhaps be as well to mention the points of a healthy elephant.

The animal is in constant motion, with the ears flapping, and the tail and trunk swinging to and fro. The skin is almost black, and the bristles cover ing the body are firm to the touch; the light-coloured spots on the head and trunk are of a pinkish colour; the eye is bright and clear, pulse from 48 to 50 per minute; mucous membranes of mouth, etc., are of a beautiful pink colour; the back is free from scars; a moist secretion exudes around and above the nails, and is easily seen by throwing a little dust on the parts; the pads are hard, and free from tenderness; any signs of the latter may readily be detected, as the tender patches are smooth and of a yellowish pink colour. If the appetite is good, the animal sleeps for a few hours every night, and on waking commences to feed.

The signs of ill-health are general languor, the skin looks greyish in colour, as also do the spots on the head and trunk; the mucous membranes are pale or deep red, with or without dark blotches on the palate; pulse is abnormal, appetite is lost; the animal does not take proper rest; eyes are dull, and there is frequently a copious flow of tears; there is usually fever, and the animal may be out of condition. As with other things, when buying elephants the purchaser should not be in a hurry, as his bargains may not afterwards prove to be all he desired. A little time should be taken to ascertain the idiosyncracies of the beast about to be bought. The manner in which the keeper goes about his charge should be noted. Some animals are very full of tricks, and if not approached to their liking, may attack a new keeper, or if timid be scared for ever. The animal should be marched about, and the pads carefully inspected after exercise; it is a common thing to fill up holes in the pads with stopping.

Burmans look upon elephants with certain habits with superstitious dread; such creatures may be bought at very moderate figures. An elephant showing a peculiar general restlessness of the body, somewhat after the manner of a bear, is much dreaded as also is a creature that has the habit of swinging his trunk only to the right and left.

The height of elephants is measured in cubits. The cubit is about twenty inches.

With regard to age, the appearance of an old animal is as follows:—The head is lean, deep hollows are present over the eyes, there is frequently a certain amount of opacity around the margin of the corneæ (*Arcus senilis*), and an abnormal flow of tears. The edges of the ears are torn and frayed; the skin of the trunk is rough, something like shark-skin; the trunk itself seems to have lost a certain amount of its suppleness; the skin over the body is much shrivelled; the tail is hard, and the end may be devoid of hair; the skin around the nails presents a rough or warty appearance; the legs are thinner than they ought to be. Other indications of age are, the general appearance, and an awkward mode of progression, etc. A rough guess at the age may be made by observing the condition of the ears, the upper edges of which lap over to the extent of an inch at the age of thirty, which increases to two inches between this age and sixty years. The teeth also afford some information as to probable age; it is, however, most difficult to determine with any degree of certainty the age of these animals.

In this country, notes must be taken of every mark of identification, as "elephant-lifting" about the frontier is a popular and very remunerative industry. In the jungles, after the day's work is finished, the Burmese foresters generally put cane fetters on their animals, suspend a bell or wooden clapper from their necks, and then turn them loose to graze; they do not keep any watch over

them during the night. The thief who has been lying close by, waits till an animal strays a bit, creeps up to him, cuts through the cane hobbles, and after driving him a short distance, jumps on his back, and takes him the shortest cut into Siam. The hills clad with very dense jungle afford such "gentlemen" ample shelter; the owner, as a rule, has the good sense not to "hunt for a needle in a bundle of straw."

Accomplished thieves make plenty of money, for they steal an animal in our territory, sell him in Siam, steal him again a month or so after, bring him across our frontier, and once more dispose of him to some one at a place many miles distant from where they originally stole the beast. I once heard a man remark that if he had anything to do with the framing of laws he would put "elephant-lifting" under crimes punishable with death. Needless to add that he had lost more than one animal in this unsatisfactory way; by great good luck he recovered one, after spending a few hundred rupees.

Distinctive marks are, as a rule, not very numerous on these creatures. Burmese elephants may be divided into two classes, *viz.*,—

A. Timber elephants. These may again be put into two classes, *viz.*,—
   (1) Trained tuskers.
   (2) Trained males and females.

B. Baggage elephants.

A well-trained tusker always commands a high price in the market; he is much more useful than a tuskless animal, as with the aid of his tusks he can stack timber, carry blocks on his tusks, turn logs over, and help in getting them over obstacles. Prices run from Rs. 1,100 to Rs. 3,000, according to size, training, and the length and thickness of the ivory. Merchants are always ready to buy, and are prepared to pay fancy prices. These animals are mostly employed in the yards. Dragging elephants: these are mostly tuskless males and females, and are trained to the jungle-timber trade, which is very hard work; they have to drag the logs up hill and down dale, through thick cover, till they get to a stream. Well-trained ones sell for a good figure—anything from Rs. 1,100 to Rs. 1,800. Most Burmese animals are trained to this work. Tuskers are also employed in jungle work. The baggage animals are often Siamese elephants. The demand is small, and they may be bought fairly cheap—Rs. 800 to Rs. 1,200—which, after all, is only what one has to pay for a respectable horse.

Tame animals are plentiful enough; I know of one company that have at least 600 elephants at their command. The firms engaged in this industry own large numbers of elephants, but they also have a number of Burman, Karen, and Shan contractors in their employ, who undertake to work out a certain amount of timber at certain rates, employing their own animals: some of these men own many animals.

Siam is the country in which to purchase these beasts, as they are cheap, and are more accustomed to baggage work. Some of the firms buy many of their animals over there. The usual way the merchants get at them is by sending messengers to say that animals are required, and that they will be ready to inspect any animals brought in to certain places on our frontier, on stated dates. Dagwin, on the Salween, would be a good place to get at the Laos elephants, as the grounds are distant only about three days' march. Papun, in the Salween Hill Tracts, would also make a good base. I believe the average price is Rs. 800. Muang-nan (Lat. 18° 50′ N., Long. 100° 45′ E) is considered by Burmans to be an excellent place to buy elephants. The price is said to be from Rs. 500 to Rs. 1,000. Rahaing (Lat. 18° 50′ N., Long. 99° 90′ E.), on the left bank of the Me-Ping, is also considered to be a good centre: a very extensive trade in teak is carried on in the Rahaing district, and elephants are plentiful. The town itself is distant about seventy miles from Myewaddi, one of our frontier posts in the Maulmain district. Animals could be marched in with ease. Moung-Hpay is another place in Siam. Some animals might also be bought at Kyauk-Kyoung, which is not very far from our frontier in the Tavoy district.

The Siamese around Chengmai (Zimme), Kyon-Taing, and Mohauk, are said to breed elephants. The truth is, they own a large number of animals which roam about the jungles in a semi-wild state, and, as might be expected, a certain number of calves are born : these people also buy up all the calves they can lay hands on, and let them go about till they can sell or train them. Calves may be bought for little or nothing : this is also the case in Burma. Owners would often prefer to give them away, rather than be subjected to the expense of keeping them. A great many animals may be found in most of our frontier districts, like Tavoy, Amherst, Shwegyin, Toungoo, Salween Hill Tracts, and in Karenni. I believe there are from 200 to 300 in the latter place, and about 100 in and around Papun. In certain parts there is hardly a jungle village that cannot boast of possessing an elephant, and the usual rates for hire of a baggage animal is Rs. 2 per diem.

Feeding.—Only those animals working in yards, and of course most Government animals, are what may be termed " stall fed ;" all others have to forage for themselves. When work is finished, the fore or hind legs are coupled with a hoop of plaited cane, which is lashed between the legs with a piece of rope, a large wooden clapper is suspended from the neck, and they are then turned loose to graze. Grass is their staple food,—that is, when in their natural state,—and wild ones spend a good deal of their time in places where it is abundant. In some parts there are miles of this grass, and often one is ignorant of elephants being in it till nightfall, when they begin to trumpet. As a rule it is procurable in most places at all seasons of the year. Wild ones also spend part of the day in the dense jungle, where they sleep, and browse on the young branches of trees ; when the young shoots of the bamboo are sprouting, or regeneration has taken place, they visit these tracts and stay some time in them. The plants that elephants will consume are numerous, but are not always readily procurable for stabled animals. If wild animals be watched while grazing, it will be observed that, after pulling up a bunch of grass, they remove the dirt by beating it against their legs, and then bite off only the lower third, which is fresh, sweet, and succulent. Tame ones will do the same, provided they receive an ample supply of fodder. It must be noted that it is the young succulent stems of the " Kaing," *i.e.*, elephant-grass (*Saccharum spontaneum*), which forms the most important item of their daily food. It is difficult to say how much one of these beasts can eat, for if left to themselves they will graze twenty out of the twenty-four hours. From the wild ones we learn one or two useful hints, *viz.*,—that good fodder and plenty of it should always be before a tethered animal ; he will take proper rest if his belly be full, whereas if he has to wait some time for his food, he has to eat when he ought to be asleep, and he is thus deprived of that rest so essential, and which must be all refreshing to an animal who takes so little. Again, that in eating their grass, the part enjoyed is only the lower portion ; they therefore should be allowed much in excess of the ordinary ration. If the residue often seen in front of a stabled animal after a meal be weighed, it will be found to be a large slice off the allowance, and on examination very often the major portion will be seen to be worthless stuff. Those who are in charge of these animals must not be led away by the sight of drivers bringing in large loads of grass on their elephants' backs Nothing short of personal inspection of the fodder is satisfactory. Contractors are quite as bad as the mahawuts. Every bundle should be opened out, and all dirty and worthless stuff rejected. Mahawuts are often too lazy to obtain good grass. This is especially the case when on the march ; they think that as long as they can show a good-sized load to catch the eye of the officer in charge, that it is of little consequence whether the animal eats it. When a beast is not permitted to pick and choose his fodder, it is unpardonable on the part of anyone in charge to allow anything but good clean food to be presented to him. Mahawuts are fond of reporting that there is no grass about, but that there are plenty of good trees near at hand. Every means should be taken to find out the truth of such statements, as, though grass may not be abundant in the immediate vicinity of a camp it may be plentiful enough a mile or so away. It saves them a deal of trouble if they are allowed to go to these handy trees and lop off a number of branches. There is no objection to the animals getting a supply of leaves in addition to a ration of grass. Whenever circumstances permit, all elephants should be let

loose to graze. There is nothing I know of more conducive to keeping these creatures in good health, and it is quite the best treatment for sickly and debilitated animals. To prevent straying, a couple of heavy chains ought to be wound round the legs, just above the pads, or a few turns of a heavy chain should be put round a hind leg, and the long free end allowed to draggle behind. When the feet are closely hobbled, they cannot move about enough to obtain good grazing. Karens Burmans, and Shans simply hobble with the light cane fetters which allows of their straying a bit : they at times use the long chain on the hind leg. A large bell or clapper is suspended from the neck, as in the jungle, where usually all is still. The sounds of these bells can be heard some distance off, and thus time and trouble are saved in bringing them in. Government elephants being kept in an artificial state, their diet must be modified and supplemented. At times much energy is demanded of them, and a shorter time is given them to repair the loss than if they were wild, so it is necessary to supply them with increased nourishment without undue stimulation. For this purpose a daily allowance of twenty to thirty pounds of rice or paddy (unhusked rice) should be given, and it is better to give the latter crushed. They should also receive a fair ration of salt ; it does them good. Wild animals constantly visit the salt-licks. Wheaten flour made into cakes and sweetened with common sugar is much relished ; onions, tamarind pulp, etc., may also with advantage be incorporated in the cakes : they ought to be given after the ordinary rations.

One or more of the following plants are procurable in most places :—

Vernacular names.	Botanical names.
1. Kaing	Saccharum Spontaneum.
2. Hsen-ngo-myet	Eleusine Indica.
3. Nyoung-baw-de	Ficus Religiosa.
4. Nyoung-chedauk	Ficus Benjaminoides.
5. Nyoung-gyat	Ficus Cordifolia.
6. Wa-nga-chut	Bambusa Spinosa.
7. Salu or thalu	Licuala Peltata.
8. Ok-shit-thee	Ægle Marmelos.
9. Pein-nai	Artocarpus Integrifolius.
10. Kyoo	Arundo Madagascariensis.

The stalks and leaves of the banana, pineapple plants, young shoots of the bamboo, sugarcane, etc., are all readily eaten and thoroughly enjoyed by these creatures.

Early morning and evening are the proper times to supply fresh fodder ; if they have work to do, the food ought to be given before and after it.

Watering.—Elephants are most particular about their drinking-water, and always like to drink from a stream or other running water. In the wild state, they drink when they are taking their bath, *viz.*, in the early morning and evening ; they at times also drink and bathe in the day—in fact, they enjoy taking to water at any hour.

Occasionally, on the march, the pools about contain water only fit for bathing purposes. Under these circumstances some of the water set aside for the use of the camp should be drawn and supplied to them, otherwise they will drink their fill of the stagnant stuff at the bathing place.

It is necessary that domestic animals be bathed at least once a day, otherwise they are certain to fall ill. If there are no pools where the animals can bathe, water must be drawn and thrown over them, while the mahawuts rub their bodies with pumice-stone or a brick. Burmans are most careful in attending to this detail ; they are fully aware that it is natural to their existence, and that continued want of a bath soon brings on skin irritation and general indisposition. When marching, it can do the animals no harm to drink a small quantity of water when they are thirsty, but they ought not to be permitted to throw it over themselves when heated.

Exercise.—When idle they should have at least an hour's exercise morning and evening. Sending them out a good distance for forage is a good plan.

Shelter.—Where there is not good natural shelter, sheds should be erected on a well-drained and sheltered spot. The floor ought to have a fair slope ; posts for picketing must be put down, if procurable ; there is nothing equal to a fine grove of trees, provided it be well drained: Exposure to rain does not act prejudicially, but exposure in unsheltered places to cold night-winds has a bad effect on them ; this is especially the case if the days are hot. On no pretence should a beast be tethered in the sun ; it is positive cruelty.

Work.—With proper care, an elephant can work comfortably for six or seven hours daily, and in the charge of a good attendant can do many long marches without knocking himself up. There is a very great tendency to overload these creatures, some people being under the impression that an elephant can carry anything and everything, and are not satisfied until they see a beast get up looking like a Christmas Tree, with pots, buckets, kerosine oil tins (all well packed with odds and ends), lamps, etc., suspended from every part of his back.

It is altogether overlooked that before a pound of baggage is put on his back, his commissariat gear—consisting of guddee, gudelah, chains, and a mahawut (at least nine stone) with his pots and pans—weighs between 400 and 420 lbs., and only the closest supervision will prevent overloading. Subordinates should be cautioned that if any animal be found carrying an excessive load, they will be severely punished. As a rule, mahawuts are not to blame; they will complain fast enough *if they know an officer takes an interest in their animals.*

Being nocturnal animals, they are far more active and can perform much more work in the early morning, evening, and night, than at other times. Even with shade during the day they are unhappy, and under ordinary circumstances should not work between 11 A.M. and 4 P.M. This is of course not always possible, as, during a campaign, urgent reasons arise which necessitate animals doing heavy work at any hour ; but when this has to be done, it is advisable that the loads be light, and that short but frequent rests be allowed : this is also essential when working in hilly country. Too frequent night-marching and continued long marches tell heavily on their constitutions: fatigue may come on so imperceptibly that it passes unnoticed until too late, when some animal drops under his load from exhaustion. As previously stated, these animals require very little sleep, so it is imperative that every opportunity be afforded them to obtain it, especially before and after work. They invariably sleep between midnight and 3 A.M. In this country, Burma elephants are mostly employed in the jungle, where there is always deep shade, and in streams. Though the work is hard they get frequent rests, and can every now and then get a mouthful of grass, etc. It is not nearly as trying or wearisome as tramping over all kinds of ground with a heavy load on a hot day. Marches should never exceed thirty miles. It must not be forgotten that in most cases, when relieved of their loads, they have to go out and carry in their fodder.

Attendants.—Burman keepers (Hsen-tha-ma) are, I fear, quite unsuitable for work with transport. Good men may be found, but they are few, and, though kind to their animals, they are idle and apathetic, do not understand our system of loading, and I imagine would be too lazy to learn. Moreover, there is a very wide gulf between their views and ours on the subject of discipline, and the discomforts attending active service would not be appreciated by them. A Burman is truly happy when he has plenty of food, ample amusement to fill up the odd hours he may be awake, sufficient money to buy silks to wear, and to permit of his having an occasional gamble. As for work, the less he has, the happier he is. Fortunately for him, Providence has given him a fertile land to live in, in which by three months' ordinary labour he can provide food for the year. Timber merchants employ Burmans in the jungles, as they understand the work, and can stand the climate ; and Indian mahawuts in the yards. Karens and Shans are more industrious than the Burmese, and might possibly do.

In any case those placed in charge of elephants should be kind but firm, and very even tempered. No animal has a more ready perception of such qualities than the elephant.

Indian keepers are a most difficult class of men to deal with, but if carefully selected and justly treated, a marvellous amount of work can be got out of them I think that it is too often the case that an officer in charge of mixed transport devotes all his attention to the mules and ponies, leaving the other animals to the care of a Transport sergeant, often a temporary hand, who, through inexperi ence and want of knowledge of the language, does not go the right way to obtain work out of such men.

Elephant-keepers are born pilferers ; they cannot help it. The appropriation, for sale or their own use, of part of the grain ration, and the submission of false and exorbitant bills for drugs in very urgent cases, are common offences. The former can be avoided by weighing the ration and seeing the animal get it, the latter by keeping in stock the drugs usually ordered or preferred by mahawuts. Their dishonesty is of the most flagrant description, and though prejudicial as it must appear to good discipline, unless such peculation be carried on to such an extent as to directly affect the health of an animal, severe punishment, such as dismissal, should not be enforced : good management is the remedy. One point should never be overlooked—that is, that a good keeper is the exception rather than the rule, and that an animal placed in the hands of a succession of keepers is often subjected to treatment such as not to prove beneficial. It can also be readily understood that elephants are most troublesome in the hands of new attendants.

The offences for which mahawuts should be dismissed or severely punished are, unkindness due to ill-temper and want of patience, want of concern regarding the prosperity of the beasts in their charge, evidenced by making the immediate wants of their animals subordinate to their own ; and for a perverted standard of duty, *viz.*, in entertaining the idea that the animals being Government property, it matters little what may happen them.

A good keeper thoroughly understands the peculiarities of his charge. This knowledge can only be obtained by long experience and close observation. He looks after the animal at and off work ; when driving he has to be on the watch for means of economising the animal's strength, and saving him from avoidable exertion and exposure.

After work he looks out for shelter, good drinking-water and food, examines all parts exposed to irritation, notes the state of the appetite and excretions, and reports anything wrong to the person in charge. As a rule he has a good knowledge of approaching, catching, subduing, and fettering unruly beasts, and such men cannot readily be replaced ; hence the expediency of making light of the more ordinary offences of these men.

It is necessary that every keeper be allowed a cooly or kawardie, as on the march he is useful to go in front of his animal, to point out sharp stones, sharp stumps of trees,—in fact, to guide the animal along the easiest and safest route. After work he goes out to assist in collecting forage, and in camp keeps the standing clean. It is in this capacity that a mahawut usually serves his apprenticeship.

Gear.—Elephants being employed for two purposes, two kinds of gear are used *viz.*,—(*a*) dragging gear ; (*b*) that employed for riding and travelling.

Many kinds of the former are in use, the merits and demerits of which cannot be considered here.

With regard to the latter, this being a country where elephants are not, as a rule, specially trained for baggage work, it is not surprising to find the gear employed very simple and roughly made. The howdahs are invariably baskets of different sizes and shapes ; there is no regular pattern—each man builds his *kah* to suit his fancy or requirements. They consist of a framework of stout cane ; if for carrying grain, they are covered with raw hide, but for ordinary work

smaller canes are interlaced to give the frame strength, and also to hold small articles. Another kind has a light framework of wood with interlacing of light canes or bamboo. Very often little attention appears to be paid to the carrying capacity of these baskets, for I have seen some so small as to be utterly useless. The average carrying capacity, I should say, is from 300 to 350 pounds. All these patterns of howdahs fit snugly on the back.

The names of the different parts of the gear employed by the Burmese and Karens are as follows:—

English.	Burmese.	Karen.
Howdah or Cradle	Kah ...	Tsu.
Pad	Kon-hla ...	Ka-chaw-ye.
Girth	Wun-bat ...	Swe-pa-ko.
Crupper	Me-thain-cho ...	A-mi-blá.
Neck-rope	Le-bat-cho ...	Kaw-pe.
	Yin-thain.	
Fetters	Htoo.	
Goad	Kyoon.	

The le-thain, or neck-band, is a rope round the animal's neck to which the clapper is suspended, and by which the driver hauls himself into his seat.

Pads.—During the dry season raw hides are used; as a rule, six or seven pieces are laid on the back. In the rains bark is substituted. The bark is obtained from one of the following trees: Malaing-bin, Broussonetia papyifera, or the Shaw-bin, Sterculia ramosa (red), Sterculia versicolor (white), Sterculia ornata (yellow). These sheets of bark appear to afford ample protection to the back. From three to six layers are used.

Girth.—This may be a stoutish rope, but is more commonly made of plaited rattans or creepers, and these rattan-ropes are very strong.

Crupper.—This consists of a semi-circular piece of wood with a hole bored at each end to receive the crupper-rope; very often, however, the cane fetter is used as a crupper.

Neck-rope.—A rattan, or ordinary one-inch rope, is employed for this purpose.

Htoo.—The plaited cane hoop for fettering has been described.

Goad.—The massive iron Indian goad is not used by the Burmans. The Burman implement consists of a small bar of iron, slightly bent at one extremity, which is pointed but not sharp. At the other end there is a loop by which it can be fixed to a light handle of cane or bamboo. No severe injury to the head can be inflicted with it. The Karens very often only employ a piece of male bamboo pointed at one end.

The Siamese howdahs are square or oblong in shape; the frames are made of wood. Those in upper Siam are rather small, about four feet long, two broad, and eighteen inches deep; those used by the wealthier classes are rather larger.

The advantages of the gear are, that it is simple, very light, cool, does not cause undue pressure, thus saving the backs of the animals. It can be taken off or put on by anyone in a very short time. No special knowledge is required to load the baskets, and though fragile in appearance, they are capable of standing a heavy strain. In a country like this, repairs to any part of it can be carried out by the wayside; the only implement necessary is a *dah* (sword), which every Burman carries about him when at work. The obvious objection to the employment of such gear is the want of space for carrying stores.

Value of Elephants as Transport in Burma and adjacent countries.

My experience of elephants as transport animals is that they are very good provided the animals receive proper care and supervision, they do not, as a rule, suffer much from disease, and are capable of performing a great amount of

work. The majority of cases of elephants being disabled by sore-backs and feet are, in my opinion, due to want of supervision. If every care be taken to see that animals receive their food, are not overloaded, saved unnecessary labour, and that parts exposed to irritation be regularly inspected before and after work, I am certain that the persons in charge will be well repaid for their trouble. The advantages of these animals for transport are—

1 They can be fairly easily obtained, hire or purchase; can be quickly and easily loaded; require no rations to be carried, fodder being in most places plentiful. Most of the animals in the country are trained to jungle work and are used to roughing it.

2. They march at a fairly good rate, and in heavy country could keep up with troops, or would not be left very far behind. If moderately loaded, they would do well for a forced march, as they keep up an average pace, and can do without sleep for a fair time.

3. They do not occupy much space on the line of march, so are economical as regards escorts. Owing to their immense strength they can do all manner of odd jobs.

4. They require no more care or supervision than is necessary for other kinds of transport animals. (They seldom get it, however, being, as a rule, left to the mercy of the native attendants.)

5. The base of operations and along the line of communication are the best places to employ them, as they are less exposed to attack or capture, and can be more easily fed.

6. The physical condition of the country, the denseness of the forests which clothe so large a portion of it, the forest-clad hills, large rivers, swamps, utter want of roads,—all point in favour of the elephant being the animal to surmount such difficulties.

Objections.—One great objection to the use of elephants is, that they will not stand fire; they are very easily alarmed; small animals such as terriers often cause them to bolt.

2. They can be seen some way off, and their immense carcases afford fine targets for an enemy.

3. Should these animals be employed on service from this country, I would recommend that commissariat guddees and gudelahs be provided; the iron saddle is not necessary; I think, for jungle work, elephants are much better without them. One Indian attendant for each animal would be necessary to do the loading. If Chinese (Panthè) mule transport and Shan pack-bullocks were also engaged, the Burmese elephant gear would do.

Vices.—Bolting, I think, may be considered the most troublesome vice these animals are addicted to. Many means are adopted for stopping a "bolter."

Diseases.—Of the epizootic disorders met with, foot-and-mouth disease and anthrax are the most common: the latter disease has been very prevalent this season amongst domestic and wild animals.

The more common ailments to which they are liable are catarrh, fever, diarrhœa (parasitic and non-parasitic), dysentery, debility, apoplexy, rheumatism, eczematous eruptions, and of course surgical injuries and other wounds.

Fatal Shots.—It is sometimes necessary to destroy an elephant. The shots are:—1, Forehead shot, on level ground, head in natural position. Aim at centre of forehead, just at the top of bump at base of the trunk, and about three inches higher than a line drawn between the eyes. 2, Rear shot. A bullet placed in the hollow above the swelling at junction of neck and jaw is fatal; the shot must be taken from behind at an angle of 45 degrees. 3, Side shot. Aim directly into the ear-hole, in a line to pass through the opposite ear-hole. Shots placed in close proximity to the ear-hole are fatal. It is necessary to be very close to ensure accuracy. 4, Body shot. Aim just above the wrinkle behind

the elbow. An animal wounded in this spot does not, as a rule, go far. A good and accurate rifle is necessary for shooting these beasts. In charging, the head is held high ; aim a foot or more lower down than when in the natural position.

Since writing this note, I have, through a friend who has just returned from Siam, received a few notes. The object of his visit was to try and purchase some good timber elephants, and he started for that country from Da-Gwin on the Salween. He visited all the large Laos States,—*viz.*, Chengmai, Lampoon Lakon, Moung-Prai, and Moung-Nan. In the Baw-Le-Yua district, four marches from Da-Gwin and two from Moung-Haut on the Me-Ping, he found that elephants were plentiful, and that they were mostly engaged in carrying iron ore to the smeltery, and were nearly all females and accustomed to baggage work. The owners were not keen on selling, but the average price would be about Rs. 800. The people in this district go in for breeding elephants, as I have already noted.

Almost all the tuskers are in the hands of the chiefs ; ordinary individuals cannot keep them long. If they get a chance, they smuggle them into Burma, where they always fetch good prices.

With but few exceptions the drivers are Burmans or Kamoos (a labouring class who come from across the Mekong, somewhere near Luang-Prabang). By all accounts the Siamese appear to surpass the Burmese in their dislike for work.

There are professional elephant-catchers in the Mekong valley ; they bring the animals when tamed into Luang-Prabang, from which place many are brought down country.

In most of the villages, or rather outside, is a place for training young elephants : this is a large shed in which, there is a "crush" built with stout posts some six feet high, and placed some little distance apart. The young animal is driven in at the wide end : he walks down a little way, till he finds he is getting into a corner ; but before he can turn, cross bars are run in behind. When he gets to the far end he finds himself wedged in. Cross bars are then placed behind and under the beast, the former to prevent backing, and the latter to stop attempts at lying down. The trainer then climbs up, and jumps on the back of the animal, who cannot throw him off. This performance is repeated until such time as the elephant does not mind a man riding on his back. The next step is to teach him to drag. These lessons are usually carried out on sandbanks or other soft places. The young one and a well-trained elephant are taken down ; tandem dragging gear is put on, the old animal with a man up going as leader. A large plank is now fixed on behind for them to pull ; as soon as the leader starts, the young one jibs and roars, but the old one keeps on a steady strain. The youngster often lies down, but in a very short time he learns that resistance is of no avail. Training is usually started between the ages of six and ten years.

From the notes given I understand that elephants are very plentiful in most parts of Siam, that they are nearly all trained to baggage work, and the people find plenty for them to do, and so are not too keen to dispose of them, but will readily do so if they are offered anything reasonable above the average price.

The animals that would be for sale would be mostly females ; in size they are about the same as those met with here.

The gear employed by the Siamese would be useless for Government purpose.

Prices vary a good deal according to the state of trade.

If Chengmai (Zimme) was taken as a centre, at least one hundred good baggage animals might be purchased within three months, at prices ranging from Rs. 800 to Rs. 1,300

RANGOON ;
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